

M. I. WELCH.
VARIABLE FEED FOR SAW MILLS.

No. 424,663.

Patented Apr. 1, 1890.

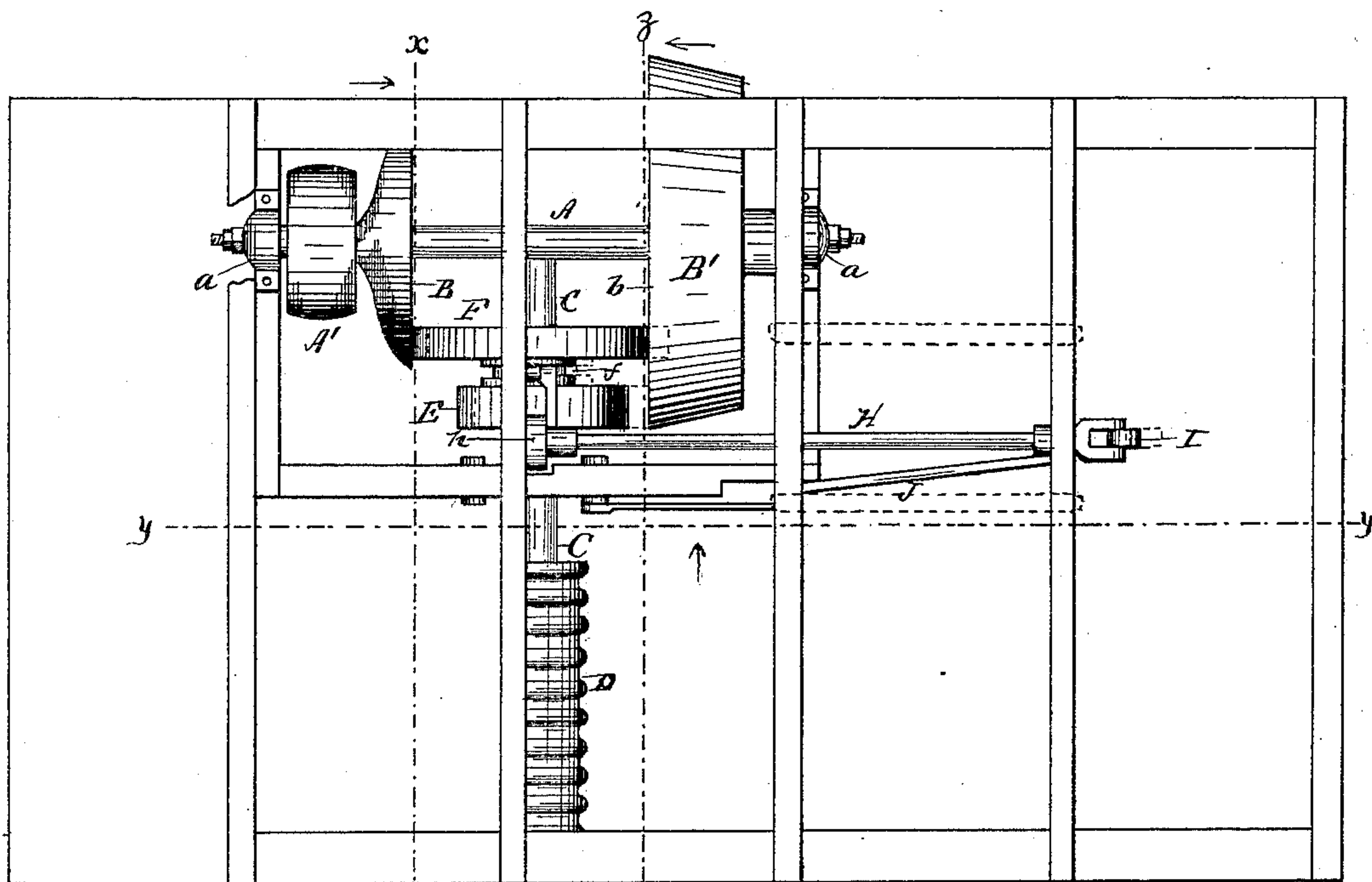


Fig. 1. x

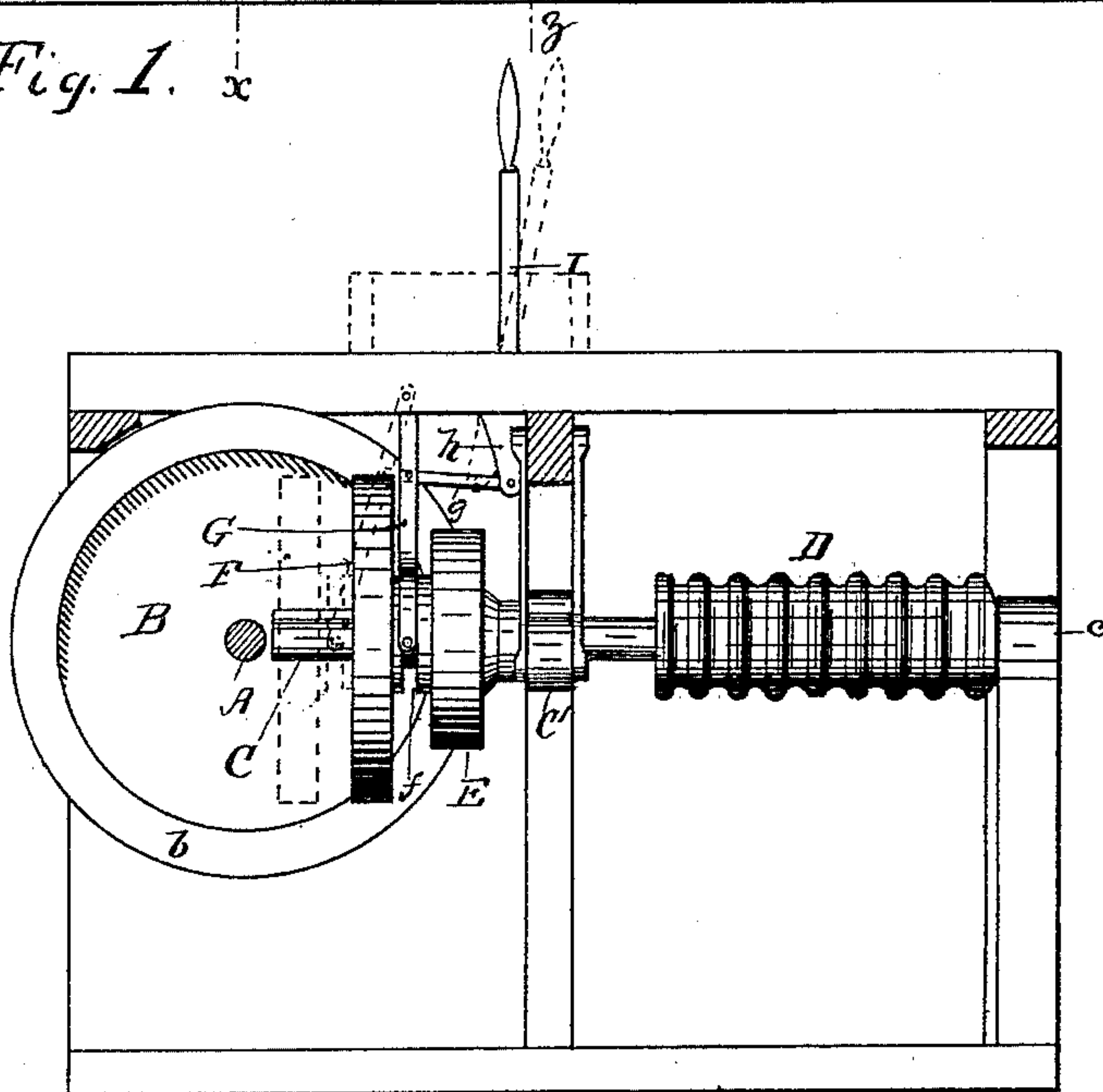


Fig. 2.

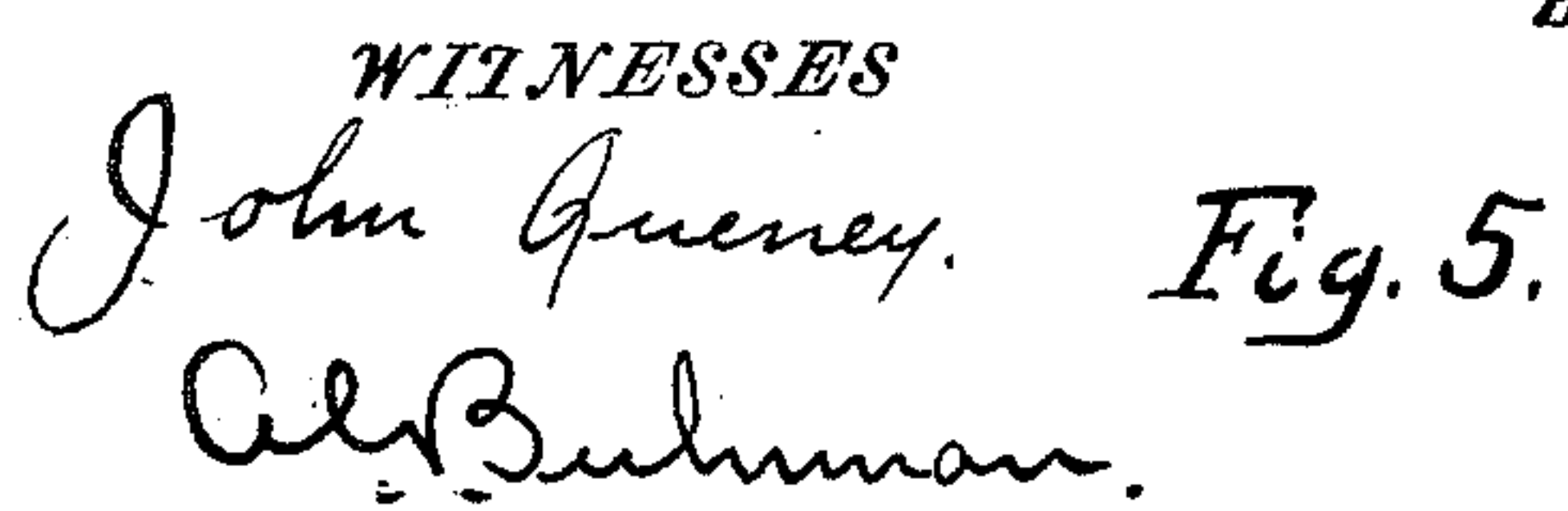
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2 Sheets—Sheet 2.

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UNITED STATES PATENT OFFICE.

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VARIABLE FEED FOR SAW-MILLS.

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Application filed December 28, 1889. Serial No. 335,235. (No model.)

To all whom it may concern:

Be it known that I, MICHAEL ISRAEL WELCH, a citizen of the United States, residing at Sparks, in the county of Berrien and State of Georgia, have invented certain new and useful Improvements in Variable Feed for Saw-Mills; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to feeding devices for saw-mills, and has for its object the provision of a simple, cheap, and effective variable feed and run-back, which can be attached to any sort of saw-mill where a rope-feed can be applied.

The invention consists, essentially, of an adjustable friction-pulley working against a flat-faced flange on a driven shaft, and in a swinging box for the shaft bearing such laterally-adjustable pulley, and also a second friction-pulley fixed on said shaft and operating upon a rimmed disk or flange to effect the run-back, whereby the tension of the rope upon the spool will hold either of the friction-pulleys to its work.

The following detailed description will explain the nature, construction, and purpose of my said invention and the manner in which I carry it into practice:

In the accompanying drawings, which illustrate the best means for carrying my invention into practice, I have not deemed it necessary to illustrate the saw-mill and log-carriage, nor the application thereto of the rope-feed, as such are well understood and do not differ in my invention from the well-known forms.

In the said drawings, Figure 1 is a plan view of the feed device. Fig. 2 is a section of same on line $x x$, Fig. 1, looking in direction of arrow. Fig. 3 is a section of same on line $y y$, Fig. 1, looking in direction of arrow. Fig. 4 is a section of same on line $z z$, Fig. 1, looking in direction of arrow. Fig. 5 is a section of the dish-shaped disk.

Similar letters of reference indicate corre-

sponding parts in all the figures where they occur.

A is a driven shaft carrying the pulley A', driven by a belt from a pulley on the line-shaft or in any other convenient manner. This shaft is provided with end-capped boxes $a a$ to reduce friction, which are provided with set-screws to take up the end play and make it convenient of adjustment. These set-screws will have jam-nuts upon them to prevent slipping.

B is a flange or disk with a flat face, fixed upon shaft A, and B' is a dished flange or disk provided with a rim b and having its concave face set opposite the flat face of disk B. The disk B' is also fixed upon shaft A.

C is a counter-shaft set in a box c at one end, near which end it carries the rope-spool D, fixed upon it, from which extend the ropes connected to the log-carriage and run over sheave-pulleys in the mill-deck in the center, near each end of the carriage-track, in the usual way. Near the opposite end the counter-shaft C is supported in a swinging bearing C', so that it can be moved laterally, as will presently be explained. Beyond the swinging bearing a friction-pulley E is fixed upon shaft C and stands in line with and can be made to bear against the rim or edge b of disk B'; and beyond this pulley E the shaft C has splined upon it an adjustable or variable friction-pulley F, which can be made to bear upon the flat face of disk B at any point in its radius. A yoke G, swung from the way-beam above, has pins or rollers resting in a grooved collar f on variable pulley F, and is connected by a link g to a crank h on fulcrum-bar H, which is suspended in or to the way-beams and has the sawyer's lever I pivoted to its opposite end in such a way as to allow movement in line with the bar without affecting it, but to be rocked by the said lever when it is moved transversely to the bar. By reason of this transverse movement the variable pulley F is made to move longitudinally on shaft C and caused to approach or recede from the shaft A and strike the disk B at different points of its radius, whereby greater or less speed is given to the variable pulley and to the rope-spool, whereby the feed of the carriage is regulated.

Connected to the lower end of the sawyer's lever I is a reach-rod J, which extends and is connected to one end of a pivoted lever K, to the opposite end of which a link is connected which extends to the swinging bearing C', whereby the movement of lever I on pivot in fulcrum-bar shifts shaft C laterally to cause the pulley F to bear upon disk B or pulley E to bear upon rim of disk B and to feed the log to the saw or to run back accordingly, as will be readily understood. It will be seen that the pull or tension of the rope upon the spool in either direction holds the pulley E or F, as the case may be, firmly to its work upon the disk B or B' and causes effective work. It is also apparent that the radial position of pulley F upon the disk B regulates the speed of the feed, according to the character of the timber being sawed or to the degree of power under which the saw is running, and as the pulley can be shifted from the center to the circumference of such disk the scope of variations in feed is very great.

The devices described as constituting my variable feed can, as will be seen, be manufactured very cheaply. The disks B and B' will preferably be cast-iron, and the pulleys E and F will preferably be paper-filled. The spline for pulley F can be made to serve as the key for pulley E. The shafts and other parts can be mounted upon blocks set upon the ground or in any other convenient or desirable manner. It is evident that the pulley A' can be located on opposite end of shaft A, so as to be driven by a belt from the saw-arbor; but in such case it will be found preferable to have the feed double-gearred and to have a second shaft mounted over and parallel with shaft C and connected with it by spur-gears of suitable relative diameters at the end opposite to the variable pulley. In such case the spool D is mounted on the upper shaft. I have not deemed it necessary to illustrate this construction, as the one shown is preferable, since it gives more speed with less power than the modified form described.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a saw-mill feed, the combination, with disks B and B', of the swinging shaft C, carrying the spool and having a pulley E fixed upon it for contact with disk B', and a pulley F longitudinally adjustable upon it, to bear at any point in the radius upon disk B, as set forth.

2. In a saw-mill feed, the combination, with a shaft having disks B and B', of a shaft C, having a swinging bearing at one end and provided with a fixed friction-pulley to bear upon disk B', and an adjustable friction-pulley to bear upon disk B, said adjustable pulley having a swinging yoke coupled with it, a fulcrum-rod having a crank for moving the yoke, and a lever for operating the rod, as set forth.

3. The combination, with the shaft A, having a flat-faced disk B and dish-faced disk B', provided with a rim b, of the counter-shaft C, bearing the spool D and being supported at one end in a swinging bearing and provided with the fixed pulley E and adjustable pulley, both lying between the opposing flat and dish-faced disks, a reach-rod connected to the swinging bearing, and a fulcrum-rod cranked to the adjustable pulley, and both the reach-rod and the fulcrum-rod being connected to the same lever, as set forth.

4. The combination, with the disks B and B', mounted upon the same shaft, of the adjustable pulley F and fixed pulley E, a counter-shaft upon which they are mounted, and a swinging bearing for said counter-shaft, and a rope-spool mounted on said counter-shaft, whereby the tension of the ropes upon the spool keeps the pulleys tight to their work, as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

MICHAEL ISRAEL WELCH.

Witnesses:

H. J. PARRISH,
P. W. LEAKE.